

OCCUPATIONAL SAFETY AND HEALTH  
STANDARDS BOARD

BOARD STAFF'S REVIEW OF  
PETITION FILE NO. 535

Petitioner: Larry Crabtree  
Mi-Wuk/Sugar Pine Protection District

Submitted By: Maryrose Chan *M. Chan*  
Title: Senior Safety Engineer  
Date: August 13, 2013

## INTRODUCTION

On May 29, 2013, Larry Crabtree, the Interim Fire Chief of Mi-Wuk/Sugar Pine Protection District, submitted a petition to update Title 8, California Code of Regulations, Article 10.1 Personal Protective Clothing and Equipment for Fire Fighters, Section 3408(c) relating to turnout boots. According to the petitioner, the requirement that turnout boots meet MIL-B-2885D (5-23-73 and amendment dated 12-31-75) is outdated. Petitioner recommends a reference to NFPA 1977, 2011 edition instead.

The Petitioner's letter was designated as Petition No. 535, and it is considered by the Board pursuant to Labor Code Section 142.2, which permits interested persons to propose new or revised regulations concerning occupational safety and health. Section 142.2 requires the Board to consider such proposals and render a decision no later than six months following the receipt of the proposal.

## NATIONAL CONSENSUS STANDARDS

NFPA 1971, Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting.

### 1.1 Scope

The standard specifies the minimum design, performance, testing, and certification requirements for structural fire fighting protective ensembles and ensemble elements that include coats, trousers, coveralls, helmets, gloves, footwear, and interface components.

## FEDERAL OSHA STANDARDS

The Federal OSHA standards that relate to fire fighting do not include public firefighters. Section 1910.156 applies to fire brigades, industrial fire departments and private or contractual type fire departments. Personal protective equipment requirements apply only to members of fire brigades performing interior structural fire fighting. The requirements of this section do not apply to airport crash rescue or forest fire fighting operations.

## STAFF EVALUATION

### Legal Considerations

In April 1978, the Board adopted GISO Article 10.1, which includes minimum standards for personal protective equipment for structural fire fighters. In 1985, the Board adopted substantial amendments to Article 10.1 that became effective April 29, 1985.

In Carmel Valley Fire Protection District, et al. State of California (1987), 190 Cal. App. 3d 521, the California Court of Appeals, upheld the Board of Control's finding that the requirement to provide updated fire fighting equipment was a state mandate that entitled local governments to reimbursement.

In 1990, the Legislature enacted Government Code Section 17581. This allows the Legislature to suspend the operation of statutes and executive orders that constitute state-mandated local programs from year to year and to withdraw funding therefor.

According to the State Controller's Office, the state mandate for local reimbursement, Program Number 64, Structural and Wildland Firefighter Safety Clothing and Equipment, is currently suspended. In addition, the Department of Finance confirmed that the legislature has not set aside appropriations for local reimbursement for updated personal protective clothing. Since the legislature has enacted a statute suspending the mandate, the executive does not have the authority to enforce the subject regulations.

### Technical Evaluation

Turnout boots are boots that fire fighters wear when they respond to an emergency. There are generally three types of protective footwear for fire fighters: station boots, wildland fire boots, and structural fire boots. Station boots are used when working in the station and responding to non-fire emergency e.g. medical emergency. Wildland fire fighter boots are covered under NFPA 1977, Protective Clothing and Equipment for Wildland Fightfighting and Section 3410. Wildland Firefighter Protective footwear is not the subject of the petition. Structural Fire Boots are covered under NFPA 1971, Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting and Section 3408.

NFPA 1971 requirements are structured in three different sections:

- Section 7.10 Protective Footwear Elements Performance Requirements for both ensembles.

Section includes testing requirements for various parts of the protective foot wear. For example, it includes performance requirements for thermal insulation or conductive heat resistance, flame resistance, puncture resistance, melt resistance of sewing thread, liquid penetration resistance, puncture resistance, cut resistance, slip resistance, resistance to electricity, resistance to impact and compression, resistance to bending, post and eyelets resistance to detachment, corrosion resistance of metal hardware, heat and thermal shrinkage resistance.

- Section 7.11 Additional Performance Requirements for Structural Fire Fighting Protective Footwear Elements Only.

Section requires additional tests for thermal insulation and conductive heat resistance.

- Section 7.12 Additional Performance Requirements for Proximity Fire Fighting Protective Footwear Elements Only

NFPA defines proximity fire fighting as specialized fire fighting operations that include the activities of rescue, fire suppression, and property conservation at incidents involving fires producing high levels of radiant heat as well as conductive and convective heat. Examples of such fires are aircraft fires and oil and gas fires.

Section specifies specific testing criteria for radiant reflective capability and conductive resistance.

The petitioner stated in his letter that he was unable to obtain a copy of MIL-B2885D. Board staff was unable to obtain a copy of MIL-B2885D 1973 and amendment dated 1975. The MIL-B2885D standard appears to specify a limited number of performance requirements compared to NFPA. A publication by US Fire Administration, *Activities and Practices for Improving Fire Department Safety and Health Program*, Dec 1981, mentions that the Military Specification for Fireman's Boots of May 1973, provides specifications for protection against puncture and water leakage.

29 CFR 1910 Subpart L App E mentions the military standard in relation only to testing the puncture resistance of the soles of protective footwear. The method requires the use of a testing machine with a movable platform adjusted to travel a 1/34 inch/min. The test would measure the amount of pressure in pounds required for a type of nail to completely penetrate the outsole and sole plate. Appendix E does not mention the criteria for successfully passing the sole penetration test. State standard, Section 3408(d)(2) specifies that sole penetration requirements shall meet MIL-B-2885.

Employers will have a difficult time purchasing protective footwear that are advertised as meeting military specifications referenced in Section 3408. Retailers of turnout boots typically reference NFPA 1971 and not MIL-B2885D (1973 and amendment dated 1975). Manufacturers of the protective footwear design and test their product under NFPA codes because the latest edition of NFPA is more reflective of the improvements in materials and technology than MIL-B2885D. The 2007 edition of NFPA 1971 is the seventh editions since its creation since 1971.

#### RECOMMENDATION

For reasons apart from the merit of the petition, Board staff recommends that the petition be denied and be considered for possible rulemaking when the legislature sets aside appropriations for structural and wildland firefighter safety clothing and equipment. Board staff is not recommending granting the petition because a standard updating Section 3408 would not be enforceable in local fire departments. The petitioner is better served by consulting the NFPA standards for technical reference or guidance.